
MANAGEMENT DIRECTIVE

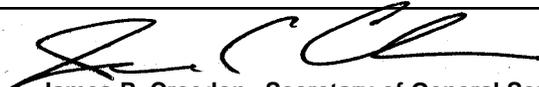
620.1
Amended
Number

COMMONWEALTH OF PENNSYLVANIA GOVERNOR'S OFFICE

Subject:

Coal Sampling and Reporting

By Direction Of:


James P. Creedon, Secretary of General Services

Date:

October 4, 2005

To standardize procedures for sampling coal, reporting receipt of coal shipments and maintaining a coal weighing record. This amendment contains major changes.

1. **SCOPE.** This directive applies to all departments, boards, and commissions (hereafter referred to as agencies) under the Governor's jurisdiction. The procedures apply to all institutions and activities purchasing coal under contract from the Department of General Services.

2. **DEFINITIONS.**

a. **The United States Bureau of Mines Technical Paper 133.** The basic guide to coal sampling. Enclosure 1 is extracted from that document.

b. **Sample increment.** Any unit container, such as a shovelful, taken from a truckload or rail car of coal.

3. **RESPONSIBILITIES.**

a. **Agencies** using coal at institutions or other installations will collect, prepare, and submit coal samples and reports as shown below and in Section 4. Samples and reports are to be sent to the designated contract coal laboratory.

Sample Data, must be submitted to the:

Department of General Services
Bureau of Procurement
Quality Assurance Division
555 Walnut Street
6th Floor Forum Place
Harrisburg, PA 17101

(2) The name of the person responsible for collecting the samples must be **typed** or **printed** on the STD-544 card (Enclosure 2) immediately above the signature. The Quality Assurance Division must be able to read this name. Please number your sample properly. The first composite sample, representing either a

week's deliveries of bituminous or a week's delivery of anthracite, is the institution's sample number one. Each succeeding week's composite sample (of the same size coal) will be given the next number in sequential order. The numbering sequence shall begin at the start of contract and continue until contract expires. Samples representing less than one composite sampling period, such as samples from one composite truckload, must be labeled as **Special Samples**, and should not be assigned a number by the institution. If your contract calls for more than one size coal, you are to maintain a sample numbering series for each size. STD forms are available through agency requisitioning channels.

b. The Department of General Services, Bureau of Purchases, Quality Assurance Division, will evaluate test results.

4. PROCEDURES.

a. Collection of gross samples.

(1) Composite samples must be collected by all using agencies. This will entail keeping one storage bin for **each size** coal delivered. It is **not** necessary to separate coal by source.

(2) Sample increments must be collected when the coal is unloaded. They must be representative of the entire lot and not taken just from the surface. The coal must be sampled from three locations in the load: at the beginning of the delivery; about the midpoint of the delivery; and at the end of the delivery. The increments should not be taken at the very beginning or at very end of load. Samples must contain the same proportion of large and small pieces and impurities as the product represented. **In the event of a dispute over sampling procedures, the ASTM Method D 2234-98, (Type I, Condition D, Spacing 1), will be referee method.**

(3) At the time of delivery, the Utility Plant Supervisor and the driver of the truck making deliveries must complete and sign Form STD-559, Coal Delivery Sampling Verification (Enclosure 2). These forms are available from the DGS Warehouse (Commodity Code 0320-0100-468). The institution's Utility Plant Supervisor must retain the completed STD-559 for one year.

(4) The total of sample increments taken should weigh at least two pounds per ton of the product delivered, or about 40 pounds of sample from a 20-ton load. They are to be collected and stored in sealed drums or sealed bins until the composite sample is prepared.

b. Preparation of a laboratory sample from a gross sample of bituminous coal.

(1) Machine sample.

(a) A coal sample-crushing machine is recommended for use at institutions burning 5000 tons or more of bituminous coal per year. The mechanical crushing and subdivision of gross samples replaces much of the manual work and results in well-mixed and representative samples.

(b) A sample crusher with riffle buckets can be used to crush and subdivide gross samples or periodic increments. The final riffling of a composite collection should weigh about 20 pounds and is the laboratory sample. It is to be divided into four parts of about five pounds each.

(2) Manual preparation.

(a) A clean surface must be used as the base for crushing. It is essential that no impurities escape from a sample and that no contaminants enter a sample.

(b) Crushing can be done with a tamper or a sledge. After crushing, all particles should be one-half inch or smaller. The crushed sample is to be quartered and subdivided as shown in Enclosure 1. The final subdivision is to consist of four parts of about five pounds each. The four parts are to be placed in separate plastic bags and must be labeled with a completed Coal Testing Request form, as shown in Enclosure 3. If using a plastic bag, ensure that contents do not rupture the plastic bag before or after shipping.

c. **Preparation of a laboratory sample from a gross sample of anthracite coal.** A gross sample is subdivided, as shown in Enclosure 1, except for illustrations 1, 6, 11, 17, 23, and 29, which pertain to crushing. **DO NOT CRUSH ANTHRACITE.** The final laboratory sample is to consist of four parts of about five pounds each. The four parts are to be placed in separate plastic bags and must be labeled with a completed Coal Testing Request form, as shown in Enclosure 3. If using a plastic bag, ensure that contents do not rupture the plastic bag before or after shipping.

d. **Submission to laboratory of bituminous and anthracite coal.** Three parts of each four-part laboratory sample are to be submitted to the designated contract laboratory. Testing of bituminous or anthracite composite delivery samples must be done on a weekly basis. The sampling period must be from Sunday thru Saturday each week. The samples must be packaged, labeled with a completed Coal Testing Request form (Enclosure 3), and shipped by UPS, Federal Express, or other carrier to guarantee delivery at the contract laboratory not later than the second Monday following the sample period for which the sample was prepared. The fourth remaining vendor's portion is always available in the event of vendor challenge disputes. The vendor's sample must be retained for 60 days.

e. **Special samples.**

(1) If an institutional maintenance super-visor suspects the coal being delivered is substandard or would cause boiler-operating problems, special laboratory samples may be prepared and submitted. The special sample may represent a single truckload or several truckloads depending on the problem. Special samples do not affect the frequency or submission.

(2) Inspectors from the Quality Assurance Division, or a designated agent, may visit installations to check sampling procedures and storage facilities. They may take samples as a crosscheck of samples previously submitted by an institution.

3 Enclosures:

- 1 – Method of Preparing a Sample of Coal by Hand
- 2 – Coal Delivery Sampling Verification (Form STD-559) and Coal Sample Data Card (Form STD-544)
- 3 – Coal Testing Request

This directive replaces, in its entirety, *Management Directive 620.1* dated February 6, 2002.

METHOD OF PREPARING A SAMPLE OF COAL BY HAND

NOTE
SELECT A HARD, CLEAN SURFACE, FREE OF CRACKS AND PROTECTED FROM RAIN, SNOW, WIND, AND BEATING SUN. DO NOT LET CINDERS, SAND, CHIPPINGS FROM FLOOR, OR ANY OTHER FOREIGN MATTER GET INTO THE SAMPLE. PROTECT SAMPLE FROM LOSS OR GAIN IN MOISTURE.

1. Crush 1,000-pound sample on hard, clean surface to 1" size.

2. 1,000-pound sample crushed to 1" and coned.

3. Mix by forming long pile, A-spreading out first shovelful, B-long pile completed.

4. Having by alternate shovel method. Shovelfuls 1, 3, 5, etc., reserved as A; 2, 4, 6, etc., rejected as B.

5. Long pile divided into two parts; A-reserve; B-reject.

6. Crush 500-pound sample (fig. 5, A) to 3/4" size.

7. 500 pounds crushed to 3/4" and coned.

8. Mix by forming long pile, A-spreading out first shovelful, B-long pile completed.

9. Having by alternate shovel method. Shovelfuls 1, 3, 5, etc., reserved as A; 2, 4, 6, etc., rejected as B.

10. Long pile divided into two parts; A-reserve; B-reject.

11. Crush 250-pound sample (fig. 10, A) to 1/2" size.

12. 250-pounds crushed to 1/2" and coned.

13. Mix by forming new cone.

14. Quarter after flattening cone.

15. Sample divided into quarters.

16. Retain opposite quarters A, A. Reject quarters B, B.

17. Crush 125-pound sample (fig. 16, A, A) size.

18. Mix by rolling on blanket.

19. Form cone after mixing.

20. Quarter after flattening cone.

21. Sample divided into quarters.

22. Retain opposite quarters A, A. Reject quarters B, B.

23. Crush 60-pound sample (fig. 22, A, A) to 1/4" size.

24. Mix by rolling on blanket.

25. Form cone after mixing.

26. Quarter after flattening cone.

27. Sample divided into quarters.

28. Retain opposite quarters A, A. Reject quarters B, B.

29. Crush 30-pound sample (fig. 26, A, A) to 3/16" or 4-mesh size.

30. Mix by rolling on blanket.

31. Form cone after mixing.

32. Quarter after flattening cone.

33. Sample divided into quarters.

34. Fill two 2-1/2 pound sample cans from BB for duplicate.

First stage in the preparation of 1,000-pound sample.

Second stage.

Third stage.

Fourth stage.

Fifth stage.

Sixth stage.

METHOD OF PREPARING A SAMPLE OF COAL BY HAND. THE NECESSARY TOOLS ARE A SHOVEL, TAMPER, BLANKET MEASURING ABOUT 6 BY 8 FEET, BROOM, AND RAKE. THIS COAL IS RAKED WHILE BEING CRUSHED, SO THAT ALL LUMPS WILL BE CRUSHED. FLOOR OR BLANKET IS SWEEP CLEAN OF DISCARDED COAL EACH TIME AFTER SAMPLE IS HALVED OR QUARTERED.

COAL DELIVERY SAMPLING VERIFICATION

INSTITUTION NAME		DEPARTMENT OR AGENCY
DELIVERY DATE / /	TONS DELIVERED	VENDOR
SOURCE		
COMMENTS		

We certify that a Commonwealth employee took a representative sample of this delivery from at least **three** different locations within the load. The total sample for this load is at least **two** pounds per ton of coal (about 40 pounds for a 20 ton truckload).

UTILITY PLANT SUPERVISOR OR DESIGNATED EMPLOYEE →	SIGNATURE	PRINTED NAME
TRUCK DRIVER →	SIGNATURE	PRINTED NAME

INSTRUCTIONS FOR UTILITY PLANT SUPERVISOR:

Retain this document for one (1) year.

COMMONWEALTH OF PENNSYLVANIA STD-544 REV 1-90	
COAL SAMPLE DATA	
<input type="checkbox"/> ANTHRACITE	SIZE
<input type="checkbox"/> BITUMINOUS	
USING AGENCY	
PURCHASE ORDER NO.	REQUISITION NO.
SAMPLE NO.	TONS REPRESENTED
DELIVERY PERIOD (TIME PERIOD OF DELIVERIES REPRESENTED BY SAMPLE)	
VENDOR	
SOURCES	
COMMENTS (PHYSICAL APPEARANCE AND GENERAL BEHAVIOR IN FURNACE)	
TYPED OR PRINTED NAME OF PERSON PREPARING LABORATORY SAMPLE	
SIGNATURE OF PERSON PREPARING LABORATORY SAMPLE	
TELEPHONE NO.	
DATE	

COAL TESTING REQUEST

Instructions

Block 1- Place a check in the appropriate box for the type coal you are submitting.
 Block 2- Enter the coal size. Example: 3/4" x 1-1/2", 3/16" x 3/4", 5/16" x 9/16", 3/16" x 5/16", 3/32" x 3/16", etc.
 Block 3- Enter the name of your institution and department. Example: Allentown State Hospital, DPW.
 Block 4- Enter your Facility's FL# for purchasing lab testing. **THIS FL# WILL BE USED TO INVOICE YOU FOR THE LAB TESTING.**

DO NOT USE THE COAL PURCHASING FL#

Block 5- Enter in the name of vendor's supplying coal to institution.
 Block 6- Enter institution's sample number. This is the sequential number you assign following instructions in *Management Directive 620.1*.
 Block 7- Enter in the number of tons received during the delivery period.
 Block 8- Enter the inclusive dates. Example: July 15-July 21.
 Block 9- Check block **9** for all routine test requests. The laboratory will perform all tests listed.

DO NOT CHECK THE INDIVIDUAL TESTS IN BLOCK 10 unless you want additional tests performed.

Block 10- Use this block to request special or additional tests other than the **INITIAL TEST** checked in block 9.
THERE IS AN ADDITIONAL CHARGE FOR THESE TESTS. SEE CONTRACT FOR PRICING.

1. <input type="checkbox"/> ANTHRACITE <input type="checkbox"/> BITUMINOUS	2. SIZE:	3. FACILITY NAME/AGENCY:
4. FIELD LIMITED PURCHASE ORDER NUMBER (FL#) for coal testing :		5. VENDOR:
6. SAMPLE NUMBER:	7. TONS REPRESENTED:	
8. DELIVERY PERIOD (TIME PERIOD OF DELIVERIES REPRESENTED BY SAMPLE):		
9. TEST REQUESTED: <input type="checkbox"/> Initial Anthracite or Bituminous Testing to include Moisture, Ash, Volatile Matter, BTU, Sulfur, FSI (bituminous only) and sizing (anthracite only) IF PORTION "A" FAILS TO MEET SPECIFICATIONS, PORTIONS "B" AND "C" WILL BE TESTED		
10. ADDITIONAL TESTS REQUESTED (PLEASE CHECK IF DESIRED): <u>DO NOT CHECK ANY OF THESE BOXES UNLESS YOU NEED SPECIAL TESTING PERFORMED</u>		
<input type="checkbox"/> Moisture	<input type="checkbox"/> Fusibility of Ash (AST)	
<input type="checkbox"/> Ash	<input type="checkbox"/> Grindability	
<input type="checkbox"/> Volatile Matter	<input type="checkbox"/> Friability	
<input type="checkbox"/> BTU	<input type="checkbox"/> Ultimate Analysis	
<input type="checkbox"/> Sulfur	<input type="checkbox"/> Major/Minor Elements of Ash	
<input type="checkbox"/> Sizing of Anthracite	<input type="checkbox"/> FSI (Free Swelling Index)	
<input type="checkbox"/> Sizing of Bituminous (Reeder Coal Only)	<input type="checkbox"/> Total Moisture	

SEND YOUR THREE SAMPLE PORTIONS AND THIS FORM TO THE CONTRACT LABORATORY